MOTORSHIP

In the Interests of Commercial Motor Vessels

Vol. I SEATTLE, U. S. A., JUNE, 1916 No. 3

MOTORSHIPS UNDER CONSTRUCTION AT SEATTLE

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MOTORSHIP

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First Voyage of Auxiliary Furnishes Interesting Data

The Matson Navigation company's vessel "Annie Johnson," which recently completed her first voyage to Honolulu and return as a motor auxiliary, has been under close observation by many shipping factors who are seeking detailed information based upon performance before embarking in similar ventures. In brief, it may be said that the voyage was an entire success from the standpoint of demonstrating the adaptability, reliability and economy of this type of power.

There has been considerable discussion among shipping interests as to the comparative merits of auxiliary and straight power for various Pacific services, and it is interesting to note that the captain of the "Annie Johnson" states that he made very little gain from the use of her sails on this voyage, as the time lost in tacking, etc., consumed almost entirely the equivalent of the saving thus effected. It is understood that in the future her sails will be used only occasionally, and principally as a standby.

The demonstration of fuel economy was a very satisfying one, Messrs. Bolinders' most optimistic figures being excelled. It is reported that when Captain Matson of the operating company received his report on the fuel consumption he was so skeptical that he had her tanks plumbed to verify them.

The "Annie Johnson" completed her trial trip to test the running of the two 160 B. H. P. "Bolinder" engines with which she has been equipped, on Saturday, April 29th, at 11 p. m., and having loaded a quantity of explosizes, proceeded on her voyage to Honolulu at 3:45 p. m. When well clear of the light ship, the wind being fair but light, sail was set, both engines being kept running at full power, and at noon, April 30th, the distance showed by log, 212 knots; on May 1st, at noon, by observation, 213 knots; on May 2nd, at noon, 185 knots; May 3rd, at noon, 155 knots. On this date the ship encountered very heavy weather, during which time a serious leak developed in one of the sidecargo ports, making it necessary to put the ship on the opposite tack to enable the necessary repairs to be made. This occasioned a delay of six hours, the ship being practically headed back to San Francisco.

The remainder of the voyage was made without incident. An average speed of a little better than 8.50 knots per hour was maintained, as is shown by accompanying record of day's runs, the ship being propelled by her engines, which were not stopped until she arrived at her destination, except for 1½ hours, to examine the forward main bearing of the starboard engine, which gave indications of heating. No evidence of any serious scoring being shown itself, the engine was started up, and ran, as stated, continuously.

The "Annie Johnson" arrived at port of Honolulu at 6 p. m. on May 10th, but owing to the quarantine regulations of the port was unable to enter the harbor until 7 a. m. the following morning, May 11th, having made the trip in 11 days.

It is interesting to state here that while the engines were stopped to make an examination of the bearing referred to, the speed was reduced by more than 3½ knots per hour, although at this particular time the wind was very favorable for sailing, which was not the case during the whole of the voyage.

The "Annie Johnson," after discharging her Honolulu cargo, proceeded to different island ports under her own power at very fair speed, considerably shortening the time usually taken up in making these interisland trips, which before had to be made with the aid of a tug boat at considerable expense and delay.

To show how creditable the performance is on this trip we will compare it with the steamship "Justin," which left San Francisco shortly after the "Annie Johnson," and made the trip in 10 days and 17 hours. The "Justin" is a full powered ship, lately owned by the United States government, and is considered easily able to maintain a sea speed of 10 knots.

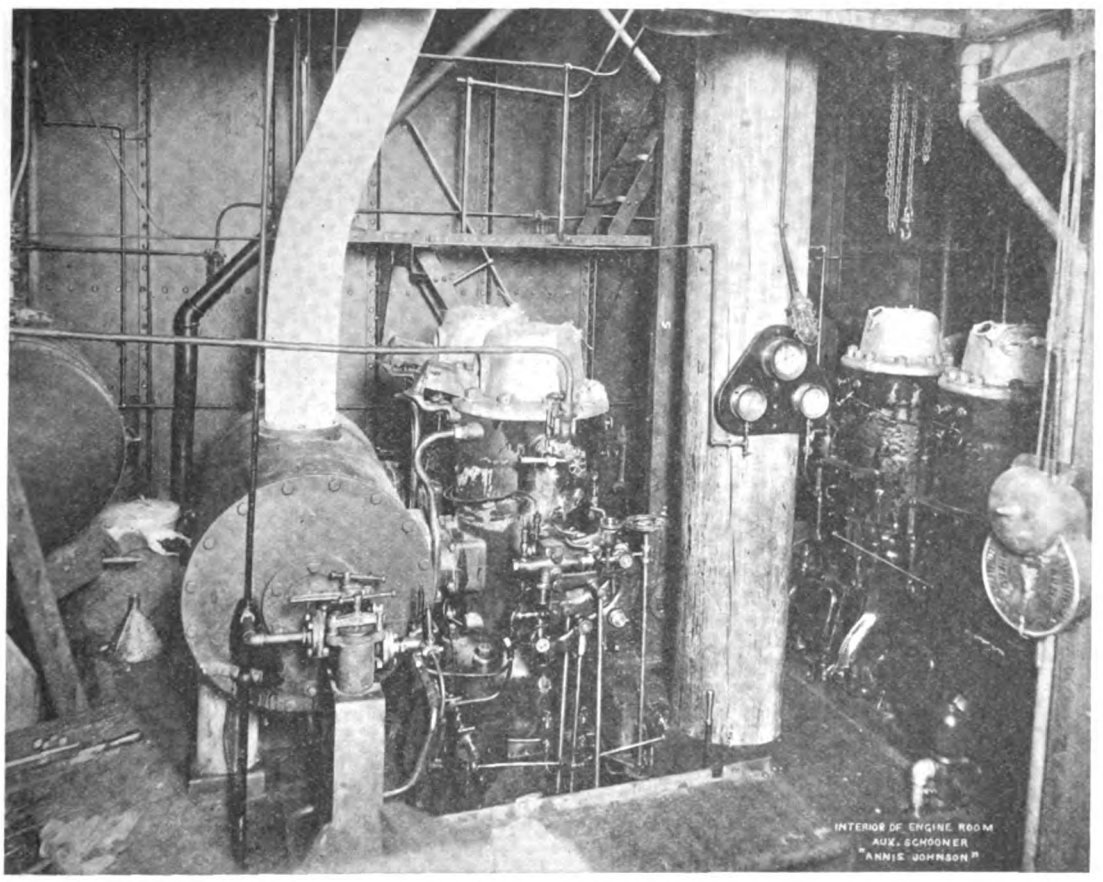
The fuel consumption of the "Annie Johnson" averaged 9½ barrels per day, equal to less than .40 pounds of oil per B. H. P. hour, amount used on the voyage being 105 barrels.

The space occupied by the engine room installation together with the tankage, has not interfered with the carrying capacity of the ship, it having been proved that the ship was able to stow as large a cargo on this voyage as on any former voyage.

The "Annie Johnson" left San Francisco April 29 at 3:45 p. m.

April	30	at	12:00	Noon	212	knots	by	log
May	1	"	"	"	213	"	"	observation
"	2	"	"	"	185	"	"	"
"	3	"	"	"	155	"	"	"
"	4	"	"	"	191	"	"	"
"	5	"	"	"	213	"	"	"
"	6	"	"	"	222	"	"	"
"	7	"	"	"	220	"	"	"
"	8	"	"	"	210	"	"	"
"	9	"	"	"	216	"	"	"
"	10	"	"	"	216	"	"	log

Arrived off port at 6 p. m., and waited outside



ENGINE ROOM "ANNIE JOHNSON"
Showing Her Two 160 h. p. Hot Bulb Engines

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until 7 a. m. on the 11th, according to quarantine regulations.

The return voyage was made in a little over fifteen days, the engine being used for the propulsion of the ship for the whole distance, as the weather was altogether unfavorable for sailing, head winds or calms prevailing during the whole voyage.

The following statement gives a record of the days' runs:

May	26,	Left Mahukona at 6:00 p. m.	
"	27	Noon----------	90 knots
"	28	" ----------	196 "
"	29	" ----------	175 "
"	30	" ----------	170 "
"	31	" ----------	150 "
June	1	" ----------	110 "
"	2	" ----------	155 "
"	3	" ----------	147 "
"	4	" ----------	144 "
"	5	" ----------	143 "
"	6	" ----------	143 "
"	7	" ----------	155 "
"	8	" ----------	135 "
"	9	" ----------	135 "
"	10	" ----------	215 "
"	11	" ----------	150 "
			2415 "

" 11, Arrived San Francisco 6:20 a. m.

The engines worked very smoothly and were not stopped during the whole of the voyage.

The total running time for the round trip from San Francisco to Honolulu and return was 696 hours, which includes calling at different inter-island ports.

The total consumption of fuel oil for the above time was 289 barrels.

Consumption of lubricating oil, 400 gallons.

Approximate total cost of fuel and lubricating oil for round trip, within $470.

It is interesting to compare the voyage of some other well-known sailing ships which left the Hawaiian islands for San Francisco several days before the "Annie Johnson." The bark "R. P. Rithet," belonging to the Matson Navigation company, occupied twenty-eight days in making the trip, having left the Hawaiian islands two weeks before the "Annie Johnson."

The four-masted ship "Falls of Clyde," belonging to the Associated Oil company, was thirty-seven days out from Honolulu at the time of the arrival of the "Annie Johnson," and the schooner "Beulah" nineteen days out.

The latter vessel, which left Honolulu three days before the "Annie Johnson," was passed by her on the 30th, four days out.

The "Annie Johnson" had as cargo on this voyage 2000 tons of sugar, drawing 19 feet 6 inches forward and 18 feet 10 inches aft.

FIRST MOTORSHIP ENTIRELY BUILT IN SWEDEN SOLD TO NORWEGIAN PURCHASERS.

The first large motorship to be built entirely in Sweden has recently been completed, and has been sold by her owners before she was actually put into commission. This vessel is the Varjag, a tank ship which was ordered by Nobel Bros., of Petrograd, before the outbreak of war, for construction at Gothenburg. She was to carry 6800 tons of fuel oil on a draught of 24 feet 3 inches at a speed of 12½ knots. The contract price was about £110,000. She has now been sold to a Norwegian shipowning firm of Dram at a price understood to be well over £200,000. She is 354 feet in length, with a beam of 55 feet and a depth of 30 feet, and is built on the Isherwood system. The sale is all the more noteworthy as the engines are the first of their type to be constructed, and have not yet proved their reliability in actual sea experience. They are, moreover, of the two-cycle type, but they have been built by a Stockholm firm that has had very long experience with Diesel engine construction. They are six-cylinder machines of the Polar type, each developing just over 2000 i.h.p. at 120 r.p.m. The cylinders have a bore and stroke of 600 mm. and 900 mm. respectively. The sale price of the Varjag is interesting in comparison with that of the motorship Kangaroo, which was built on the Clyde for the East Asiatic Co., Ltd., and was sold to the Government of West Australia for £140,000. In this case the vessel had a carrying capacity of 6460 tons and a normal speed of between 10½ and 11 knots. At the time of the sale the price was considered, somewhat high, but that given for the Swedish boat is considerably greater.

There are two other motorships under construction at Gothenburg with a deadweight capacity of 9100 tons and a speed of 12½ knots, while the machinery installation totals 4000 i.h.p. In this case, however, four-cycle engines are to be installed, and these are of the Burmeister & Wain type. One of the ships will be completed in 1917 and the other in 1918.

TONNAGE DEMAND REVIVES ANCIENT CRAFT.

Between nine and ten years ago the Seattle Rotary Engine company, with Norman R. Smith at its head, was busy disposing of nicely printed stock to a gullible public while out at Ballard, on the site of what is now the Ballard Marine Railway, they started a large wooden ship which was to be powered with the epoch-making engine. One night the company and the engine and the crew of ship carpenters stopped working, and up to the present month the ship's frames have seasoned in the winds that have blown up and down Salmon bay, but no one has come to put on the planking and give the structure life.

That there had been some 7,000 rotary engines patented did not discourage the promoters or the men who were putting up the money. They built a small boat, less than 100 feet long, called the "Spirit," and put in one of the company's engines, but she was not a success. It took about four times as much steam to run the engine as it took for an ordinary reciprocating engine of the same power. So the inventor made some changes and the company started building the larger boat—200 feet long, 36 feet beam and 12 feet depth of hold.

The Lake Washington canal was about as much a dream then as the rotary engine, but today the lock is completed and when the dredging company came to build the bulkhead along the Ballard harbor line to hold the fill at the new level they decided to buy the old frame and finish it up. By chance the man who started the boat was found, and has charge of the crew that will put the boat in the water. The dredging company will launch her as soon as possible so as not to delay the bulkheading, and then the boat will be docked, fitted with a heavy oil engine and used as a work barge in the company's operations up and down the coast.

P. A. F. TO OPERATE SHIPYARDS.

Commercial Point, South Bellingham, Wash., is being converted into a shipyard by the Pacific American Fisheries. The point originally was a high bluff extending out into the bay in South Bellingham, but the hill several years ago was leveled by hydraulics and the Hackett Cold Storage company built a big refrigerating plant there. The plant never was operated and the building is now to be used in connection with the shipbuilding work.

E. B. Deming, president of the fisheries company, has announced that two steamships of about 2,000 tons each are to be built for the fishing work in Alaska. If there is any demand for boats after these two are completed more will be built.

CLOSE LEASE FOR SHIPYARD PROPERTY.

The Elliott Bay Yacht and Engine company has leased from the Seattle port commission three acres of waterfront on the west side of the West Waterway and this, with the adjoining five acres which the company has purchased, will be the location for the new shipbuilding and repair plant which will be commenced at once. The land lies between Dakota and Idaho streets and has a frontage on the waterway of about 650 feet.

The plans call for eight vertical lift docks of a type that has been patented by the manager, C. O. Morrow. The new dock consists of a platform which is raised and lowered by a large number of cable hoists arranged along the sides. These hoists will be operated by electricity and it is expected that the dock can be raised and lowered quicker and cheaper than the docks of the existing types.

Four of these docks will be built immediately and the other four as the business of the company requires. The first four will be 100 feet long and 30 feet wide; the next two will be 150 feet long by 60 feet wide, the next one 175 feet long by 60 feet wide, and the eighth will be 300 feet long by 80 feet wide. A track will connect the first docks built with a storage yard for yachts and small vessels that are generally laid up for the winter. This past year the company had a great many more boats to store than they had room for, so they are making provision for three sets of tracks to handle their storage business.

On three sides and between all of these drydocks will run the main pier, and south of these will be three building slips. There will be a machine shop 210 feet long and 50 feet wide, a carpenter shop 180 feet long by 60 feet wide and an office building. These improvements will leave room for other buildings and shops which may be added as they are needed.

The company's lease on its present location does not expire for about three years, and business will be carried on there until the new plant is complete. The company has been rushed with business and has orders enough to keep them busy in their new quarters for some time to come. The contract for the dredging for the drydocks and slips has been let and the work will be pushed to an early completion.

WILL BUILD MOTOR SHIPS AT VANCOUVER, WASH.

The Motorship Construction company of Vancouver, Wash., is among the latest companies to venture into the field of wooden ships and heavy oil engines. The company was incorporated under the Washington laws by M. A. Reed, S. S. Hewett and D. C. Zimmerman. These men represent outside interests that are supposed to be a prominent Scandinavian shipping concern. The capital stock of the company is $75,000.

Four five-masted schooners will be built by them in a yard to be constructed on the Pittock-Leadbetter waterfrontage at Vancouver. The vessels will be 275 feet long over all, 44 feet beam and 22 feet deep. They will carry 1,700,000 feet of lumber, about 60 per cent of it in the hold and the rest as deck load.

It has not been decided yet whether the new ships will be powered with Bolinder or Skandia engines, but there will be two engines of 350 horsepower each. The winches and other auxiliary equipment will be electrical.

E. B. Shock of Seattle has the plans for the new schooners practically complete. The manager of the corporation is M. A. Reed of Portland. About 100 men will be employed at the start and it is expected to have the ships in the water in from eight to ten months.

SHIPYARD MERGER COMPLETED.

The Todd Shipyards corporation is the name of the new company which has been incorporated in New York to absorb the properties of the Seattle Construction & Drydock company, the Robbins Drydock & Repair Company of Brooklyn, N. Y., and the Tietjen & Lang Drydock company of Hoboken, N. J. The new company will represent an investment of more than $9,000,000 and plans are under way to enlarge and improve all of the properties taken over.

Wm. H. Todd of New York is president of the Robbins Drydock & Repair company, and he has been chosen president of the new company. J. V. Patterson, president of the Seattle Construction & Drydock company, is now in the East, conferring with the other members of the corporation and will return during the first week in July.

The Tietjen & Lang Drydock company operates nine drydocks and do a general construction and repair business, as do the other two yards in the merger. The Seattle plant is to be enlarged immediately to more than meet the total shipbuilding needs of the Pacific Northwest, and is expected to be the largest in the world in the matter of facilities for ship repair and equipment.

The Seattle yard now has under construction three submarines for the United States government; one torpedo boat destroyer, 315 feet long by 30 feet 7 inches beam by 8 feet draft and 1,125 tons displacement; two 5,000-ton freighters for the New York & Cuba Mail S. S. company, to be launched in the next few weeks; three 7,500-ton freighters; a freighter for Edgar F. Luchenbach, 469 feet long, 55 feet 11 inches beam and 40 feet 8 inches deep, equipped with Parsons turbines; and a freighter for foreign parties, 396 feet long, 53 feet beam and 29 feet 3 inches deep.

Besides this the yard has all of the repair and drydock work it can attend to. As soon as President Patterson returns the plans and policy of the new company will be entered into and a new era in Seattle's ship construction and repair business entered upon.

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SEATTLE YARDS BUSY WITH MOTOR SHIP CONSTRUCTION.

On the west side of the West Waterway in Seattle the framing of the first Alaska Pacific Navigation company's fleet of motor ships has just been completed, and almost opposite across the waterway eighty-three men are setting up the frames of two of the Washington Shipping corporation's fleet of twelve motor schooners. Great piles of the finest of fir lumber are being worked up and fastened into the structure. Everywhere in the sunlight is the glare of the fresh-cut timber and the flash of the workmen's tools.

On one side of the waterway the holes in the timbers are being bored with compressed air drills and the pins driven home with compressed air hammers, while across the way it is an electric wire that the workman drags after him as he makes his way from frame to frame instead of a hose. Here a gang of men steady a fourteen-inch plank through a bandsaw, and there a workman who got his skill and his stature from forefathers that hewed the ships of vikings is swinging a broadax. Now the derrick upends a frame that has been pinned together on the platform, and now it swings the sawed parts of another of the immense frames into place, but through it all runs the hurry, hurry, hurry that tells of the high charter rates and the need for bottoms to carry the freight that is piling up.

At the present rate planking will commence this week in the yards of the Alaska Pacific Navigation company and they expect to lay another keel in a few days. In the yard across the way framing will be finished on two boats in another two weeks. The land along the West Waterway is an ideal location for shipyards, being level and solid enough to set up large wooden ships without driving a foundation. The channel is deep enough for any class of ships and materials can be brought in by boat or by railroad or truck.

On the seventh of June the McCreery Machinery company received an order from the Washington Shipping corporation for four more 240-horsepower Mietz and Weiss heavy oil engines for the schooners they are building on the West Waterway. This makes eight engines the McCreery company has sold for these ships.

They have also sold the same company two Westinghouse 75-kilowatt generators direct connected to 120-horsepower Mietz and Weiss engines which are to furnish power for the electrical winches and other auxiliary equipment of these schooners. In addition the schooners will have 6-kilowatt lighting sets direct connected to Mietz and Weiss engines.

The new ferry that is being built for the service between Bremerton and Manette will be powered with a 60-horsepower Wietz and Weiss engine. All of these marine engines are fitted with the Mietz and Weiss thrust bearing, of which both the company and their distributor are justly proud. It is of the horseshoe type, with seven collars on the size that goes with the 240-horsepower engine. The trust is arranged to run in oil and the builders feel that in furnishing a large and efficient bearing they are protecting their engine and saving the user many of the troubles that come with thrust strains on the crank shaft.

PACIFIC COAST SHORELINE LENGTHS.

To call the attention of our readers to the unlimited opportunities and the great length of shore line that lies open for development on the Pacific ocean we are publishing these shoreline distances as they have come to us from the Department of Commerce.

Localities.	Mainland.	Islands.	Totals.
California	1,264	291	1,555
Oregon	429	60	489
Washington	1,027	684	1,721
Hawaiian Islands	...	...	842
Panama Canal Zone	29	4	33
Guam	85	7	92
Alaska	6,542	8,590	15,132
Philippine Islands	...	...	10,850
Philippine Islands	...	...	91
Total shoreline of U. S. Pacific ocean poses-sions			30,805

At the yards of the J. F. Duthie & Co. the Port of Seattle's new ferry will be launched during the first week in July. The work on the hull is practically completed and as soon as the 225-h. p. Southwark Harris engine arrives she will be put in the water.

BUILD TUNA FISHER OF UNUSUAL TYPE.

Garbutt & Walsh have just finished the sixty-foot launch "A B," which is to be used in hauling fish from the fishing grounds to the Van Camp cannery, as soon as the tuna go to any considerable distance off shore. The boat is built with a wide flare, above the water line, and is expected to carry thirty tons of fish on a net register of nine tons, the great buoyancy being obtained through the peculiar model, which consists of a racing bottom with a hollow heel. The deck has a breadth of sixteen feet and an overhang of eighteen inches. The boat will be equipped with a fifty-five horse power Imperial engine, and, when the fishing season closes, will probably be placed in the excursion trade to resorts along the coast and to the channel islands. The craft will be placed in command of Captain Percy L. Griffin.

CORLISS SALES HEAVY AT SAN PEDRO.

The Marine Hardware company of San Pedro, Los Angeles Harbor, state that during the season they have sold nineteen Corliss engines and could have sold many more, if they could have secured delivery. Two orders had to be rejected on this account on June 15. Also that they have sold more accessories for fishing boats than in any previous season. They account for the demand for the Corliss by stating that it has superior reliability and stands up under hard service remarkably well. All bearings being of bronze, they have an endurance said to be unknown to bearings made of babbitt metal alone. "The demand for nets, twine and general marine hardware has never been so good as at present," said Ray Mitchell, who is also president of the San Pedro Chamber of Commerce.

FLOATING CANNERY DISMANTLED.

The former clipper ship William H. Smith, built at Bath, Maine, in 1883, and which was fitted up as a floating cannery and cold storage plant in 1912 by the Weiding & Independent Fisheries company (later succeeded by the National Independent Fisheries company,) and operated each season to date, is now being dismantled at Seattle; the vessel will be turned into a barge and operated as a freighter. It is the intention of the owners to install Diesel engines in her in the near future.

In 1912 this floating plant was operated in Alaska, but the next year it was brought to Seattle, moored alongside the company's wharf, and operated here in 1913, 1914 and 1915.

The company will not utilize the canning plant taken from the vessel during the coming season.

FULTON EXPANDING.

C. E. Fulton, the boat builder, has taken over the machine shop business of Cretsinger & Leahy, Frank W. Leahy, of the latter firm, having taken the agency for the Joe Fellows Yacht & Launch company and the California Shipbuilding company. He has also taken the agency for the Coen oil burners and is interested in the Mex-American Trading company, which has recently purchased the power boat Anita D. The boat will be placed in the trade along the Mexican and Central American coast in the near future.

NEW TOWBOAT BUILDING.

The Banning company, operating steamers to Santa Catalina island, of which Edward Mahar is the general manager and William A. Muller is the ship building superintendent, is constructing a new tow boat which will be a sister ship to the Listo and Vivo. These boats are 63.5 feet in length and are equipped with 125 horse power Union engines. Mr. Mahar states that the Union has given such good satisfaction that the new boat will be similarly equipped, only that the engine will be 4-cylinder, 150-h. p. instead of 3-cylinder, 125 h. p. It is claimed by the manufacturers that this engine will develop from 165 to 175 horse power.

The new county ferry for the Vashion Island run will be launched from the yards of the McAteer Shipbuilding Co., June 28th. The new boat will operate between Des Moines and Portage, and landings are now being built at those places.

The ferry has been constructed under the supervision of Capt. O. D. Treiber, her designer. She is 120 feet long, 33 feet beam and will be equipped with a 250-h. p. Atlas engine. Complete she will cost about $40,000.

MOTOR BARGE A SUCCESS.

The Inco No. 1, first of the fleet of power barges that the Inland Navigation Co. proposes to put in operation on the Mississippi river has reached New Orleans, completing the initial trip from St. Louis many hours ahead of schedule.

The barge is 240 feet long, 43 feet beam and draws 7½ feet of water. It has a capacity of 1,600 tons. It is powered by four 3-cycle 80 h. p. kerosene engines and is fully equipped with electric lights, electric heat, telephones and wireless. A three ton electric gantry crane runs the length of the deck for handling cargoes.

A six inch pipe runs through the bow and is used when it is necessary to turn the barge quickly, water being pumped in on one side and discharged on the opposite side. The barges are built of steel and cost $94,150. The company has seven under construction and intends to build thirty-five.

BOAT TIMBER EXPENSIVE.

The advance in prices of oak and other hardwoods suitable for boat and ship building is causing considerable complaint among the local shipbuilders, and in some cases has resulted in innovations in methods. One is the use of California laurel, which is being worked into a number of boats for stems, stern timbers, etc., where hardness and strength are required. For such uses it is taking the place of Siberian oak, which on account of high freight rates is very expensive. The laurel is available in considerable quantities, and efforts are being made to promote its use. It is very hard and close-grained, and boat builders say that when properly cut and seasoned is as resistant to decay under water as oak. Another new policy adopted by some builders, who have formerly relied on local hardwood merchants for long timbers of Eastern oak, is to buy in large lots direct from mills in the Middle West, which gives them considerably lower prices. The present large volume of work of course aids them in doing this, assuring them of an outlet for large quantities of timber.

The Skandia Engineering company of Seattle has sold plans to the Knapp interests in Portland, who are planning to build as soon as arrangements can be completed.

The Skandia people are getting out a new set of designs for the Peninsular Shipbuilding company of St. Johns, Ore. The new vessels will be four-masted schooners, 250 feet long over all, 43 feet beam and 21 feet deep. They will be fitted with three large hatches to handle lumber, and will carry about 1,500,000 feet. They will be powered with two 240-horsepower directly reversible Skandia engines and will be fitted with full electric equipment.

A new cargo and towing boat being built in San Francisco by Robinson & Schulze for the Angelo-Farce company of Callao, Peru, will be fitted with a 125-horsepower Skandia engine. The Skandia people are also figuring on the engines for the new schooners to be built by the Motorship Construction company at Vancouver, Wash., and several other ships which are still on paper.

The Lilico Launch company is about to let the contract for another tug boat for use on Puget sound. The new boat will be 65 feet long and 20 feet beam and will be equipped with a 165-horsepower Fairbanks-Morse heavy duty engine.

On the afternoon of June 17th the freight boat "Chaco," built for the Island Transportation company, was launched at the yards of John Martinolich at Dockton, Wash. The new vessel is 65 feet long by 32 feet beam and will be equipped with an 80-horsepower Winton marine engine. Full pilot house control will be fitted. The "Chaco" cost about $8,000. She will be used on the run around Camano and Whidby islands.

In the Seattle-Kuskokwim river trade the power schooner "Ruby," of Shields & Knaflich, is now on her way north with a full cargo of general freight. The "Ruby" is powered with a 140-horsepower 'Frisco Standard engine which has been burning about sixteen gallons of distillate per hour. Last year on her trips to Alacka the "Ruby" traveled more than 18,000 miles and in all that time her engine never developed a sign of trouble.

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THE ADVANTAGES OF THE SINGLE SCREW FOR MOTOR SHIPS.

Reference to Lloyd's Register of Shipping shows that cargo ships up to 6000 tons gross almost invariably have single screws. Above this tonnage twin screws become more common until they form the rule with the few exceptions for vessels of over 10,000 tons. The horse-power required for cargo ships having speeds ranging between 10 and 12 knots varies from 2500 to 5000 b. h. p. for vessels of 6000 to 10,000 tons gross.

If the lists of motor ships already constructed and on order up to January are consulted, it will be found that single screws have been fitted to only 15 per cent of the completed vessels having engines of 1000 b. h. p. and over, while out of the 44 motor ships on order 43 are to have twin screws.

It will be seen, therefore, that although single screws are considered satisfactory for steam engines up to 3000 h. p., twin screws are always fitted where the propelling machinery is of the Diesel type.

In the earlier motor ships the provision of twin screws with two sets of engines arose partly because large enough Diesel engines were not then available for single screws and partly to avoid the risk of a complete stoppage at sea.

The first of these difficulties has been overcome, and even six-cylinder engines of 5000 h. p. are now obtainable. As regards reliability, the regular running of large motor ships since "Selandia" was put into commission, and the rapid increase in the number of such vessels, form strong evidence of their freedom from serious breakdowns.

Although the figures quoted above in connection with motor ships completed and on order at the beginning of this year show a growing tendency towards twin-screw vessels, this tendency is more apparent than real. It will be seen on further examining the lists that, of the builders of single-screw motor ships, two are German firms who could not quote for the new vessels ordered, one is British—the Burmeister and Wain Oil Engine Co., of Glasgow, who have on order the only single-screw vessel of over 1000 h. p.—while the remaining firm of Werkspoor, at Amsterdam, has been commissioned to build a single-screw engine of 650 h. p.

When comparing Diesel marine engines with those driven by steam we have only considered the reciprocating type, as although geared steam turbines are making some headway for cargo ships the vast majority of these vessels are still propelled by reciprocating steam engines.

There is little doubt that the Diesel engine is already as reliable as its steam rival, while in future there will be less risk of stoppages with large marine oil engines than with steam plant. The working cycle of the Diesel engine is very much in its favor compared with that of a steam engine, as will be shown by a very brief consideration of the construction and operation of either type. In this connection it is interesting to note that according to the reports of the big machinery insurance companies the internal-combustion engine is now more reliable than the steam engine.

The chief advantage with the Diesel engine having six or more cylinders, over its older rival is that each line of moving parts is independent until it connects on to the crank shaft. In a steam engine of the triple-expansion type generally fitted to cargo ships, each cylinder is dependent upon the other two, and when a breakdown occurs to one, elaborate arrangements, occupying much time in the making, have to be effected for passing the steam through to the other cylinders.

It is difficult to imagine any breakdown to a Diesel engine which will cause a complete stoppage, or even one involving more than a very short delay for disconnecting one cylinder and its moving parts.

In this discussion we are entitled to take the simplest form of Diesel engine as representative of what can be done towards eliminating any features likely to cause trouble. There is not the slightest doubt that the limited number of valves in the cylinder heads of the two-stroke type make it less liable to breakdowns caused by cracked cylinder covers than the four-stroke engine. On the other hand, scavenging pumps with air distributing valves are needed for the two-stroke engine, and these extra parts may give trouble. All things considered, there is little to choose between the four and two-stroke types as regards reliability.

When the various parts are considered individually it will be found that certain devices are common to two or more cylinders, while others serve the whole engine. The latter are obviously the more important from the point of view of possible stoppages, as breakdowns of these appliances mean a complete shut down of the engine.

The most important appliances which serve two or more cylinders are the fuel pumps and scavenging pumps. As regards the former there is a strong tendency now towards providing a separate fuel pump for each cylinder. Scavenging pumps for two-stroke engines seldom serve more than two cylinders. Neither of these items, therefore, can cause a complete stoppage.

Appliances common to the whole engine include air compressors for fuel injection and the camshaft with the line of gear for operating it. The supply of injection air is always ensured by an auxiliary engine and compressor, so that only a temporary loss of pressure would be caused by a breakdown to the main compressor. It must be admitted that the failure of the camshaft or the gear driving it would mean a complete stoppage of the engine. On the other hand, this gear has given practically no trouble so far, and the spares always carried allow of quickly replacing any parts which have given out.

Another feature in favor of the Diesel engine, when compared with the reciprocating steam engine, is the practicability of taking the load off one line of moving parts. It is no uncommon occurrence with steam engines at sea for a guide, crankpin or cross-head pin to heat up, and the only cure for this trouble is a generous supply of oil with a careful use of the water service. If the trouble cannot be cured in this way the engine must be slowed down or stopped altogether for a time. Trouble of this nature, unfortunately, often occurs during bad weather, when it may not be safe to stop the engines excepting for a few minutes.

With an oil engine, the load can always be taken off any main moving part temporarily by putting the cylinder connected therewith out of action. Naturally the power of the engine is diminished by this procedure, but only to a very small extent where six or eight cylinders are in use.

The thrust block and the shafting to the propeller are, of course, similar for steam and oil engines, while the strains in a shaft connected to a triple-expansion steam engine differ but slightly from those imposed by a six-cylinder oil engine of the two-stroke type running at the same speed.

Admittedly, even an eight-cylinder four-stroke oil engine strains the propeller shafting more severely than a triple-expansion steam engine, owing to the fewer impulses per revolution. This feature, however, involves no additional risk of breakdown so long as the diameter of the propeller shaft is increased in proportion to the extra work put upon it.

The absence of large high-pressure steam pipes also contributes, to some extent, towards the greater freedom from breakdowns of the marine oil engine when compared with steam machinery for propulsion.

So far we have made no mention of the boilers in steamships, which may fairly be brought into any comparison between the freedom from breakdowns of oil and steam engines. Steamships of the tonnage under consideration and with powers ranging between 2500 and 5000 b. h. p. never have less than two boilers, consequently a complete stoppage through lack of steam practically never takes place. It is, however, occasionally necessary to lay off one boiler for some defect, when the power of the engines is seriously reduced.

When all the above points are considered it would seem that the large marine oil engine is now more reliable than the reciprocating steam engine, hence there is no reason on this count why single screws should not be used in conjunction with oil engines up to the powers found satisfactory with steam machinery.

Single-screw motor ships have a distinct advantage over twin-screw vessels in the matter of lower running expenses, owing to the reduced engine-room staff and the lessened first cost of the machinery. How far the number of engineers can be reduced depends upon the power of the engines. Generally speaking, twin-screw oil engines of 1000 b. h. p. and over require two engineers on watch at the same time, whereas one engineer could look after a single-screw engine of 5000 b. h. p.

The cost of a twin-screw installation is roughly half as much again as that of a single-screw outfit, hence, by adopting the latter, the annual charges for interest on capital, depreciation and upkeep are greatly reduced.

If, therefore, the large marine oil engine is equal in reliability to the triple-expansion steam engine generally fitted in cargo vessels, while a single-screw installation offers undeniable advantages in the matter of cost over a twin-screw outfit, we may expect to see in future the abandonment of the twin-screw principle for motor ships with engines of under 5000 b. h. p.—Motor Ship and Motor Boat, (London).

NEW CALIFORNIA MOTORSHIP COMPANY.

A new corporation to be known as the Los Angeles, Mexico and Pacific Steamship company has been formed with a capital stock of $200,000, the place of business being designated as Los Angeles Harbor.

It is the purpose of the company to build one 250-foot wooden vessel, to be equipped with two 500-h. p. Diesel engines, which it is expected will drive the craft at a speed of thirteen knots. The freight carrying capacity of the ship is expected to approximate 1500 tons and accommodations will be provided for seventy-five passengers. It is intended to make one round trip per month from Los Angeles Harbor to Balboa, calling at Mexican and Central American ports each way. The formation of the company is the result of many months strenuous exertion on the part of P. H. Toland, local agent of a number of steamship companies, and who takes a great interest in the upbuilding of the shipping business of Los Angeles.

SHIP SUBSIDY STARTS CONSTRUCTION.

Acting as western Canadian engineers for the Bolinder engines the Taylor Engineering Company, Ltd., of Vancouver, B. C., have secured a contract for six 160-h. p. model M-1 Bolinders which are to be installed in three auxiliary sailing ships. These ships are being built at the Wallace Shipyards in Vancouver, B. C.

These three ships are the first three motor vessels to be built in British Columbia. They are 225 feet long, and 42 foot beam. They are being built for Messrs. Brown, Wolvin & Norcross. They were designed by W. T. Price of St. Helens and are similar to a ship he is about to build at that point.

The first pair of Bolinders for these ships is due to be delivered in August and the other two pairs in September. The Taylor Engineering Co. also represent the De La Vergne Machine Works new geared turbines for marine propulsion.

It was announced in Victoria, B. C., the first of this month that the Genoa Bay Lumber company in conjunction with the Cameron Lumber company will construct four shipyards on the inner harbor at Victoria.

When the new yards are completed a start will be made at once on building fifteen wooden ships which will be used in the off shore lumber trade. The new vessels will cost approximately $150,000 apiece.

These ships will be built under the act of the British Columbia government which allows the builders to borrow government funds up to an amount of 55 per cent of the cost of the vessels constructed.

In the May number of the "Motorship" it was reported that the B. C. Sulphite Fibre Co. of Vancouver were about to build ten auxiliary motorships, but it has since developed that instead of this company it is the H. W. Brown & Co., Ltd., of Vancouver, that is to build the vessels.

The H. W. Brown & Co. have already placed orders for five auxiliary powered schooners and contemplate building several more in the near future. They have not yet determined whether these will be built under contract or for themselves.

STARRETT TO SELL WINTON DIESEL.

H. W. Starrett, of Seattle, for many years an active factor in the gas engine business, has taken the Pacific Coast agency for the Winton Diesel engine, manufactured by the Winton Engine Co., of Cleveland, O. For several years past the Winton company has been turning out a very high class marine gas engine and for the last two years has been exhaustively testing the first of its Diesel type motors. Engines will be built in sizes of from 120 to 1600 h. p. and will be sold at from $50 per h. p. up Mr. Starrett has temporary headquarters at 17 Colman Dock, and will later move to his old location 809 Railroad avenue.

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Estimated Cost of 250-Foot Motor Auxiliary

AUXILIARY FUEL OIL MOTOR POWERED SAILING VESSEL
Construction Cost

Approximate Dimensions: 250'x44'x17' (depth of hold).
Wooden hull, heavy construction.
Material: Fir with galvanized fastenings.
Rigged: Fore-and-aft, 5 masted bald-headed schooner.
1 deck.
Engines: Twin 160 BHP. Heavy Oil Motors.
Speed: Average with engines fully loaded—7 knots.
Gross tonnage: 1400
Net Tonnage: 1250
Dead Weight Carrying Capacity: 2000 tons.
Lumber Carrying Capacity: 1500 M. to 1600 M ft.

Cost of hull, spares, iron work, sails, rigging, anchors, chains, etc., etc.	$82,500.00
Cost of engines	16,000.00
Cost of propellers, stern gear and shafting	1,250.00
Labor installing, piping, pumps, whistles, etc.	2,000.00
Fuel tanks—750 bbls.—31,500 gals.—120 tons weight, giving cruising radius of 65 days with engines alone fully loaded, or, with efficiency of sails added (30%)—84 days.	
Tanks cost, installed, inspection requirements	3,750.00
Water tanks, 100 bbls., installed	500.00
1 gal. fuel oil 7.58	lbs.
1 bbl. fuel oil 42	gals.
1 bbl. fuel oil 320	lbs.
1 ton 6.25	bbls.
Two double drum friction winches, anchor hoist, bilge pump, installed, steam or oil motor power	$5,000.00
Auxiliary engine, lights, dynamo, wiring, etc.	1,500.00
Wireless equipment, 450 to 1500 miles radius, 1 KW set, power for generator 2½ KW, installed	1,925.00
Miscellaneous equipment, nautical instruments, bedding, stores, spare lines and gear	6,000.00
Total cost ready for sea	$120,425.00

Engine Room Operating Expense

Fuel oil at $1.15 per bbl. of 42 gals. Lubricant at 42c gal. Fuel consumption guaranteed—10 gals. per hour, cost	$0.275
Lubricant consumption guaranteed per hour cost	.06
Cost of one engine per hour	.335
Cost of twin engine per hour	.67
Cost of twin engine per 24 hours	16.08
Cost of twin engine per month	480.40
Less 30% efficiency of sails	144.72
Actual cost of operation per month	337.68
	$338.00

Engine Room Crew.

1 Chief Engineer	$ 150.00
1 1st Asst. Engineer	110.00
1 2nd Asst. Engineer	90.00
Supplies, grease, etc	10.00
	$ 360.00
Food per day, per man	.65
Food per month, per man	20.00
Food per month, 16 men	320.00
Supplies	10.00
	$330.00

Crew

1 Captain	$ 150.00
1 Mate	110.00
1 Mate	75.00
1 Mate	60.00
1 Wireless Operator	50.00
1 Cook	65.00
1 Boy	25.00
Engine Room Force	360.00
6 Sailors at $50.00	300.00
Supplies	330.00
Expenses per month, in port loading and discharging	1,525.00
Expenses per month, engines	338.00
Total Expenses per month, at sea running time	$1,863.00
Expenses per day in port, loading and discharging	$50.85
Expenses per day at sea, running time	62.10
Depreciation 5% on $120,425.00	$6,021.25
Depreciation per month	501.75
Insurance, 7%	8,429.75
Insurance, per month	702.50
Insurance, liability, 1½%	1,806.37
Insurance, liability, per month	150.55
Repairs per year	3,000.00
Repairs per month	250.00
Total per year	$19,257.37
Total per month	1,604.80

Port and Canal Charges.

Total, per day	53.50
Canal Tolls, per N. R. T.	$1.20
Canal pilotage, per foot draft	1.00

Pilotage according to port.
Harbor dues, buoy charges, docking, etc., according to port.

Stevedoring.

	Per M. Ft.
Puget Sound Mill points, contract price	$ .85
Sydney, discharging lumber	.60
New Orleans, discharging lumber	.60
New York, discharging lumber	..
Sydney, coal, loading	.10
Sydney, coal, trimming	.20
Norfolk, coal, trimming	.30
Norfolk, coal, loading	.08
San Francisco, discharging	.40
Victoria, B. C., discharging	.50
Seattle, lumber, loading per M. ft.	1.35

Estimate of cost per M. feet of lumber round trip with lumber and to Sydney and return with coal Newcastle to San Francisco, thence in ballast to Puget Sound loading port.

Distances.

Seattle to Port Townsend	40 miles
Port Townsend to Sydney	6,786 miles
Sydney to San Francisco	6,511 miles
San Francisco to Port Townsend	770 miles
Sydney to New Castle	1 day including docking

NOTE.—Vessel equipped with two sets of double drum friction winches and hatches arranged to load 250 M. ft. per day. This calculation does not take into consideration the time lost while waiting for the mill to deliver lumber alongside, or labor troubles; being based upon working intensity.

Seattle to Sydney—Distance, 6,826 miles at 192 knots per day, speed maintained, 8 knots per hour. 36 days

Loading 1,500 M. ft. lumber, 250 M. ft. per day	8 days
Discharging 1,500 M. ft. lumber	6 days
14 days at $50.85 per day	$ 741.90
36 days at $62.10 per day, running time	2,235.60
Pilotage, Sydney, 4c per N. R. T. (1250) in, loaded	50.00
Pilotage, Sydney, 2c per N. R. T. (1250) out, light	25.00
Wharfage, Sydney, 1c per N. R. T. (1250) per day (6)	75.00

Stevedoring.

Loading, Puget Sound, contract price, 85c per M. ft.	1,275.00
Discharging, Sydney, 60c per M. ft.	900.00
Delay days, 6 at $50.85	305.10
Buoy charges, 6 days	75.00
Harbor and light dues, available 6 months	100.00
General agency and customs	50.00
Managing agency fees, 2½% on 1500 M. ft at 90/s	821.25
Total expense	$6,653.85
Cost of laying down 1000 ft. lumber, Sydney	4.435
Plus insurance, depreciation and repairs, (56 days, $53.50)	6.435

Sydney to Newcastle, 1 day	$ 62.10
Pilotage, in light	25.00
Pilotage, out loaded	50.00
General agency and customs	50.00
Loading coal, 2,000 tons at 10c	200.00
Trimming coal, 2,000 tons at 20c	400.00
Delays days, 2 at $50.85	101.70
Loading days, 1 at $50.85	50.85
Buoy charges, 2 days	25.00
Newcastle to San Francisco, 34 days at $62.10	2,111.40
Discharging, San Francisco, 45c per ton	900.00
Discharging, 5 days at $50.85	254.25
Wharfage	60.00
Pilotage in and out	130.00
Port charges in and out	12.00
Water, 500 bbls.	50.00
	$4,482.30
Cost of laying down 1 ton of coal at San Francisco	2.25
Plus insurance, depreciation and repairs, 43 days at $53.50	3.40

Total Expense—Round Trip.

Voyage out with lumber	$6,653.85
Insurance, depreciation and repairs	3,000.00
Return with coal	4,482.30
Insurance, depreciation and repairs	2,300.50
San Francisco to Seattle in ballast	300.50
Insurance, depreciation and repairs	267.50
Other charges	150.00
Total expense	$17,154.65

Earnings.

1500 M. ft. of lumber at 90/s ($23.10)	$34,650.00
2000 tons of coal at $5	10,000.00
Total earnings, one voyage	$44,650.00
Total earnings, three voyages	$133,950.00
Time of round trip, 104 days; 3 per year.	
Insurance, depreciation and repairs remaining 53 days	$ 2,835.50
Captain's and engineer's salary and expenses	768.50
	3,604.00
Plus total expenses	51,463.95
Total expenses per year	$55,067.95
Net profit per year	$78,882.05

NOTE.—It will readily be seen that this estimate depends upon the ability of this vessel to maintain an average speed of 8 knots per hour. Such a vessel equipped with the economical and reliable fuel oil motors, occupying small space, not exceeding from 3% to 4% of the entire hold space; the fuel tankage required not exceeding 200 tons, is able to do this as has been shown by the actual operation of some thirty large vessels thus equipped and in operation for some time.

There is absolute proof that such a vessel thus equipped and as herein described, combining the sail power with that of the engines, the sails having been found to be from 20% to 35% efficient, according to the rig and voyage.

This calculation gives coal as the return cargo rom N. S. W. as cargoes of coal can always be obtained and as it also shows a minimum rate in order to make the estimate conservative.

To convey some idea of what is being done in this line, we call attention to the number of vessels now under construction in the U. S. of this character.

The cost of hull complete ($82,500.00) is possibly not exact at this date or future date on account of the rapidly increasing costs of all materials.

SEATTLE MOTOR SHIP BEGINS MAIDEN VOYAGE.

With between nine hundred and a thousand tons of miscellaneous cargo in her hold the "Kuskokwim River" left for Alaska as soon after her launching as she could be gotten ready and loaded. Time was not even taken out for more than one trial spin on the sound and that one trip was made between days of loading. To add to her appearance and make her look more shipshape, a funnel was built up on her poop.

On her trial trip she developed a speed of 8.1 knots per hour, with her Mietz and Weiss engines turning at 235 revolutions per minute. At that time she was loaded with about 400 tons of freight. Afterwards on the run to Ketchikan she averaged 6⅝ knots with the engines making 200 revolutions per minute.

On this run the engines burned 20½ gallons of fuel oil per hour, or about .068 gallons per horsepower. The owners were well satisfied with this performance, which is all that the builders claim that the engines will do. When the "Kuskokwim River" gets back from her first trip she will be docked and larger propellers put on, which are expected to give her more speed without materially increasing the oil consumption.

In loading the electric winches gave entire satisfaction and handled the heavy machines and steel beams that made up part of the cargo with perfect ease. The advantage of having the winches on platforms clear of the deckload was noticeable both in handling and stowing the cargo.

NEW HANLON PLANT BUILDS KELP HARVESTERS.

The Hanlon Drydock & Shipbuilding company of Oakland is just completing a new electrically driven drydock, at a cost of nearly $150,000, at the foot of Fifth Avenue in East Oakland. The drydock will be able to handle vessels up to 5000 tons and 365 feet in length.

The company is also making other improvements and has considerable work under way among which are several harvesters and barges for the Hercules Powder company to be used in connection with a huge kelp potash project at San Diego. These vessels have been built along lines worked out by long experiments and details of their equipment will be kept private until the outfit has been working for some time, but it is known that the barges are being equipped with engines of several different makes, varying in size from 50 to 150 h. p. One barge, called the Kenzil, was built by Lanteri at Pittsburg and has come down to Hanlon's for final touches; and one 36 by 110 feet was launched at Hanlon's at midnight April 18. One of the kelp harvesters was towed south about the first of April and still another was launched about the first of May. This last one was powered with two 125 h. p. Imperial marine engines and had one 110 h. p. and one 50 h. p. Imperial stationary engines for harvesting equipment. After a successful trial trip she left for San Diego. Another barge is being built equipped with three 110 h. p. and one 60 h. p. Union engines. Two of the hopper barges left May 3 for San Diego in tow of the tug Buddha.

MASTERS MUST BE AMERICAN CITIZENS.

The U. S. customs authorities in Southern California are enforcing rigidly the rule that vessels not having secured complete bills of sale and owned by foreigners must carry American citizens as masters until such documents have been obtained. This applies to a great many boats which have been built by Japanese on borrowed capital. After ownership has been established these boats will be subject to the tonnage tax and measurement fee, which, for a six-ton boat, amounts to about $24 for the first year and $15 subsequently.

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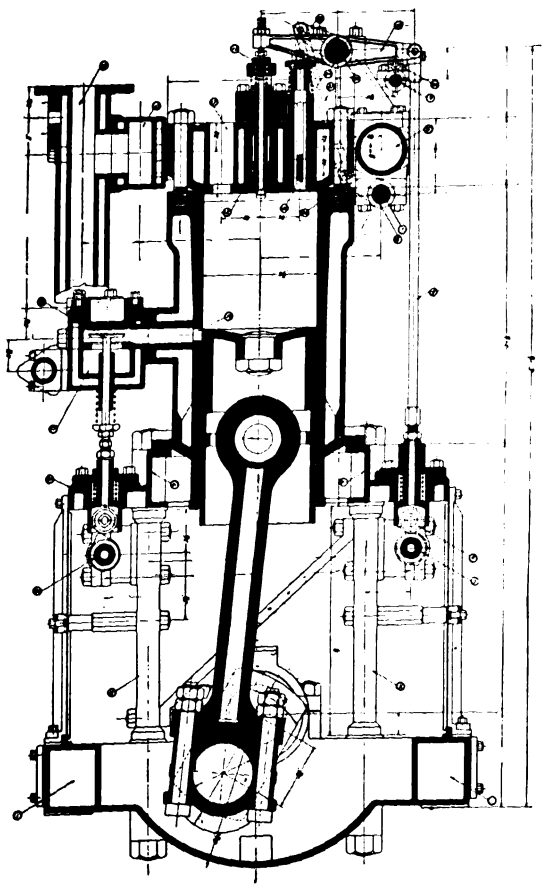
JAMES CRAIG DIESEL ENGINE.

The Marine Supply company of Seattle that handles the Union gas engines has added the James Craig Diesel engine to their list of specialties, the Craig agency for the Pacific coast having been accepted by the Union company. The new engine is built by the James Craig Engine and Machine Works, Jersey City, N. J., and can be supplied for immediate delivery in sizes running from 150 to 1,000 horsepower.

These heavy duty oil engines of American design and construction have been making some remarkable showings in economy of fuel consumption and efficiency. Almost any brand of fuel oil or solar oil can be burned in them and the company guarantees they will run on less than one-half pound of fuel per brake horsepower. In a 200-horsepower engine that means a consumption of 720 gallons of fuel a week against 1,000 gallons for the average hot bulb engine and 1,500 gallons for a gasoline engine.

One of the features of the Craig engine is the marine engine construction. The cylinders are all cast separate and bolted to a common table which in turn is supported by forged stanchions from the bed plate. In this way the whole engine is open for instant inspection, the pistons can be removed from below and any part removed without dismantling the engine.

There is an exhaust port at the bottom of each cylinder, which allows for a discharge of a part of the hot gases at the end of the pressure stroke. This helps to cool the cylinder and does away with the discharge of all of these hot gases through the port in the cylinder head which so



CYLINDER CROSS SECTION
Craig Diesel Engine

often results in cracked and warped cylinder heads and head exhaust valves. The engine is started on compressed air and is provided with a separate set of cams and valves for going ahead and reversing. The air compressor is amply large and furnishes air for both starting and the injection of the fuel.

The Craig injection valves for pulverizing and atomizing the fuel are so efficient that the engine has a wide range of speed control and the firing of fuel charges is assured down to a relatively much lower number of revolutions than is generally expected of any oil engines.

Lubrication is cared for by a gravity system which has been carefully adjusted so that just the right amount of oil is provided at all times. The engine control ssytem is assembled at one part of the engine, making it convenient and easy to operate. The muffled air intakes and water-jacketed exhaust, together with cams that are so designed as to return the valves without jar, make the engine practically noiseless which, with the absence of excessive heat and burned oil smell, tends to comfort in the engine room.

Marine Supply Company Moves.

The Marine Supply company of Seattle has moved to a new location on the north side of Pier 1. Another new item of stock, of which they feel justly proud, is the Koban two-cylinder rowboat motor. They report the following late sales of Union gas engines on the Pacific coast:

Standard Oil company, one 150 h. p.
Red Salmon Canning company, one 150 h. p.
Wilmington Transportation company, one 150 h. p.
Hercules Powder company, three 110 h. p.; one 60 h. p.
Swift & Co., two 110 h. p.
Simmons Hardware company, four 45 h. p.
Star & Crescent Boat company, one 135 h. p.
General Petroleum company, one 135 h. p.
Matson Navigation company, one 150 h. p.

NEW DIESEL ENGINE COMPLETED.

The Marine Mechanical works, fronting on the turning basin, near the drawbridge, Los Angeles harbor, is just finishing up the first of its new semi-Diesel engines, and Inventor Gaertner is very hopeful of its success. The points of excellence are claimed to be ease of operation and the accessibility of the parts. The engine has a rating of 45 horsepower and will be installed in the fishing boat "Nikko," owned by T. Togo.

This company is already receiving many calls for engines for heavy duty, ranging from 300 to 500 horsepower, for vessels now being built at various points along the Pacific coast. The company is also agent for the Pacific distillate engine, manufactured at Oakland, Cal., which it is claimed is free from smoke, on account of a superior exhaust system, protected by their own patents. These engines also have case-hardened cams, insuring the maximum of durability and the regular opening and closing of the valves at all times.

NEW SHIPBUILDING COMPANY LOCATES IN TACOMA.

The Seaborn Shipbuilding company has been formed with Phillip Morrison as president, C. N. Seaborn, manager, and H. F. Ostrander, actively interested, to put up a shipyard in Tacoma and build wooden vessels. The company has leased a site from the Northern Pacific railway and has started ordering lumber from the St. Paul & Tacoma Lumber Co.

Two schooners will be built immediately, the keels to be laid within ten days. One will be a five masted schooner 258 feet long on the keel and the other will be a three masted schooner 165 feet long. The vessels will carry 1,250,000 feet of lumber and 700,000 feet, respectively.

The auxiliary power will be steam. It has not been decided yet whether reciprocating engines will be installed or some type of turbine engines. Mr. Ostrander has been operating a fleet of ships in the Seattle-Vladivostok trade and will use the new schooners in the offshore lumber business.

FIRE ON MOTORSHIP WILL BE INVESTIGATED.

The members of the crew of the motorship Gen. S. C. Mariscal, which was burned at Acapulco April 13th, reached San Pedro May 24, after spending nearly a month in jail and now declare they will demand an investigation of the burning of the vessel.

They say they were abandoned to their fate in the Mexican jail by the captain of the ship, Frank Vega, and that it was only through the efforts of the American Consul and the presence of the cruiser Denver they were released from a charge of arson.

The members of the crew assert that the fire was of mysterious origin and insist that an investigation be made by the government.

SALMON SHIPS MAY BE DIVERTED.

While the salmon packers have been very reluctant to divert their vessels to other lines of business, even during the idle season, several of the vessels making their headquarters at San Francisco have been chartered out during the last winter, and the number will probably be increased next fall, if charter rates continue as high as they are now.

A few months ago the intimation that the Alaska Packers Association might charter its ships for other purposes was received with derision, but the report has been revived by some of the local papers, one of which asserts that between twenty and thirty of the association's vessels, with an average capacity of 3,000 tons, could be utilized in the trans-Pacific service. On the basis of prevailing tonnage rates it is estimated that the vessels would net a return of $30 or more per ton, or a possible maximum of over $4,000,000 for a season's operations; the equivalent of from four to nine years' returns from the salmon industry. However, this estimate seems to take only one phase of the matter into consideration. The association ship Star of Holland, which took lumber to Australia, is out of the packing business for this year, being still at Melbourne looking for a cargo for the return trip, and at least one other salmon ship that was chartered out has returned in ballast, getting in barely in time for the season.

Commenting on these reports, officials of the Alaska Packers Association say: "We cannot tell definitely yet what we will do when the ships return from Alaska. We do not feel disposed to send our ships out in the merchandise trade, but if rates keep up as high as they have been of late we may charter some of them for other purposes next fall. We are naturally as willing as anyone to pick up money on the beach, but the rates must be very high to justify the trouble and risk involved. In 1906 we found it worth while for a time to run some of our steamers in the coastwise lumber trade, bringing material for the rebuilding of San Francisco, but they were at a disadvantage in several ways, not being well fitted for this work in the first place, while the vessels owned by the lumber interests naturally had a certain degree of discrimination in their favor, in the matter of dispatch in loading, etc. Consequently the returns were not attractive except for a short time when rates were at the very highest point.

"While some of our ships might be profitably used to carry merchandise, it would be out of the question to divert our regular cannery ships for such business. These ships are all fitted expressly for the cannery work, and to serve other purposes would have to undergo great alterations, with the necessity of being changed back again for the next salmon season. This would be impossible, especially in the case of the ships used to carry the Oriental help and cannery hands, which within the last few years have been very finely equipped with living quarters, some of the ships having better accommodations than the average steamer."

EAST ASIATIC CO. GOING IN FOR MOTOR VESSELS EXCLUSIVELY.

The East Asiatic company, the leading Danish company, for which the pioneer large motorship Selandia was built in 1912, is now pinning its faith entirely to motorships. Last year the company owned thirteen steamers; now it has none. In three of the vessels originally driven by steam the engines have been replaced by motor-engines, while the others have been sold as new motorships became available. At the beginning of last year the company owned ten large motorships, representing a total of 75,000 tons deadweight.

During the year it took delivery of five ships of 47,400 tons deadweight. In the summer of this year a motorship of 10,400 tons deadweight is to be delivered, and next spring another of the same size.

The company's program already provides for the following new motorships: Six of 11,800 tons deadweight between September, 1917, and January, 1920. Six of 12,800 tons deadweight between 1918 and 1920. Six of 10,000 tons deadweight between 1918 and 1920. Two of the ships will have 3300 h. p., twelve will have 4000 h. p. and six ships 5300 h. p.

Other Danish owners are also known to be ordering numbers of motorships, and, according to the Copenhagen papers, one firm (presumably Burmeister & Wain), have received orders for about fifty motorships, and will thus be fully occupied until the end of 1921.

Economy of fuel, labor and space are points considered by Scandinavian countries to be in favor of motor engines. The large ships only consume about ten tons of oil a day, and therefore vessels trading with countries where oil is plentiful, as in the East and on the Pacific Coast of North America, can ship enough oil fuel for a voyage round the world. Swedish and Norwegian owners support the Danish companies in their belief in motorships.

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The Wooden Motor Schooner as a Bulk Carrier

By
MARTIN C. ERISMANN

The reasons that ships constructed of lumber have reappeared in good earnest as a part and parcel of the shipping trade are very interesting. I can remember thirty years ago, as a boy, that there was much talk of the early displacement of wood for steel construction. However, prophets rather anticipated, for we find ourselves today in the midst of a wood shipbuilding boom because the price of steel has gone up and, more important still, that the deliveries are so far into the future as to put steel as a material for motor shipbuilding out of the question. Great quantities of the best lumber for shipbuilding are available all over the Northwest. It is then no wonder that, with a large supply of material at hand, and such attractive rates procurable, and the fact that proper auxiliary machinery can be secured, that capital has finally decided to grasp the opportunity offered by the shipping business.

As I said before, the production of lumber has brought into being the shipper of lumber who has owned and built his own ships or chartered them as his needs required. It is a fact that many shippers have specialized in the handling of lumber and have established connections with the lumber interests with a view of strengthening their position, and that lumber men have contributed or bought shares in these vessels. This method has insured the lumberman only to a certain extent against the lack of bottoms for the delivery of his product to markets that could be reached by water. And this condition of affairs seems to be absolutely practical and proper, for it relieved him of the anxieties and details of a business foreign to that in which he was engaged.

It was in this condition that, in 1915, the shipper and the lumberman found themselves in an arrangement that has been gradually evolved, and to all appearances, seemed to produce a result satisfactory to both sides.

I have been told on good authority that there have been those far-sighted enough to contend that the lumber interests should in some way get together and build up their own fleets and handle their own shipping business as they might see fit.

The concerns owning vessels available for the transport of lumber have grown from small beginnings into concerns of consequence and power, and it is well known that as their business has developed they have been able oftentimes to contract for the delivery of lumber at a cheaper price than the lumber man could produce the material and make a charter of a ship for its delivery. Today the lumber business is admitted to be in a more or less discouraging condition, and no doubt some of it may be ascribed to the fact that the shipper can boost the price to the point where the consumers of our fir have let it be known that the price would have to come down or some substitute would be found. In other words, the shipper has beaten the lumberman to it. The remedy is to build ships. Today there is a contract for Central America which requires the delivery of 13,000,000 board feet, and the only thing that stands between the West coast getting the business are a few paltry schooners. Every ship available is being sent out with lumber to Australia, Africa and South America. And within a few days two ships have gone to China with lumber and will bring back general cargo.

The demand for bottoms is strong and now that conditions have settled to a point where they seem to be reasonably permanent, and charters have been made at the present prices, running into next year, pessimists and the doubters have finally gone to work to do something. And it almost appears as if the West coast would have a proper fleet of ships in a reasonably short time.

I think that at this time figures giving a general indication would impress upon your minds the business which is, and has been, developed here in the last few months. It is reported that the total seagoing tonnage of the world amounts to 34,000,000 tons and that today only 62 per cent, or 21,000,000 tons, is available in the ocean trade. Of this total, the United States has, roughly, 7,000,000 tons available, and the construction of all the ships reported on the Pacific coast, which are to be motor ships and built of wood, amounts to 70,000 tons. An estimate of the present available tonnage of the lumber vessels of the Pacific coast is about 325,000 tons, and the new tonnage projected at this time is about 21 per cent, and of the total ocean going tonnage credited to the United States, it represents an addition of 1 per cent. I do not believe that with freight earnings hovering somewhere between 800 and 1200 per cent that we can really be making a mistake by adding 1 per cent to our ocean carrying tonnage.

The money expended in the construction of between forty and fifty motor ships on this coast represents an outlay of from five to seven million dollars. Even this figure is not one to frighten us or make us in any way believe that the whole thing will go into the discard on the immediate conclusion of the European war. All that I believe has really happened is that the markets of the world are expanding, and an increased business in commodities produced or manufactured in one place will be available in other parts of the world by reason of better shipping facilities.

Last November I came in touch with a man who was anxious to secure a report touching the advisability of using motor schooners as part of lumber mill equipment. The report was made and was well received, as it supplied information on the price of delivery of lumber in New York. Later I endeavored to interest a lumberman who was paying a steamship line $14 and $16 a thousand for doing a service which he could do for himself for about $6 a thousand. Not long since the papers have recorded the chartering of these steamers at prices ranging between $100,000 to $140,000 per month. You can imagine the lumberman endeavoring to secure space on vessels that would pay for themselves in less than six months.

The early Pacific coast schooner was developed to meet the conditions prevalent on the coast, and it was wholly dependent on sail power. Gradually steam was introduced and the type of vessel developed is entirely proper and very economical for the particular trade. These vessels have been coasters and have had an average capacity of about a million feet and, with horsepower ranging between 500 and 800, make speeds in the neighborhood of eight to ten knots at sea. During the development of the steam schooner a number of large schooners, four and five-masted, propelled entirely by sails, have been built on the coast for the offshore trade, and though they have not made fortunes for their owners, they were available and have taken advantage of the present rise in value.

There is one ship, built in Seattle twenty years ago at a cost of about $66,000, that will receive $57,000 freight money for a voyage, July or August loading, to South Africa. Fifteen thousand dollars or so would represent the cost of taking her down there and bringing her back light.

It is a matter of interest in looking over the sizes of the vessels now under construction that the dimensions are very nearly the same. There are a few two million capacity vessels built, or building, but the size appears to be against them from an investment point of view, and to any one who has followed the history of sailing ships, it is evident that the maximum vessel has never been able to do as well over long periods of time as the moderate ship. The standard size today is a vessel of 1,500,000 feet capacity, 230 feet long, 44 feet wide and about 20 feet deep, equipped with auxiliary motors of from 300 to 700 horsepower. The installations are twin screw and they are auxiliary to the sail power of the vessel and are used for shifting berth, leaving and entering harbor and for use when passing from the region of one trade wind to another. The power given is sufficient under normal conditions to drive the vessel loaded between six and eight knots and it is believed that this speed is entirely sufficient for the requirements.

There are a number of propositions afloat for dispensing with sail power entirely and saving its cost. Such vessels are entirely suitable for the coasting trade, but on long voyages they would require in addition to a greater horsepower of the sailing vessel, a considerable increase in their tankage capacity, which would detract considerably from their ability to carry cargo, and at the present time it is the ability to deliver a maximum cargo which is of the greatest importance.

On long passages at sea the trade winds are cheaper than fuel and Captain Dan Kilman of the five-masted schooner "H. L. Hall" told me last winter, upon his return from Lorenze, Marques, South Africa, that he had logged 10,000 miles in fifty days. Under those conditions the fact that ship has two propellers fitted would not decrease her speed to any great extent, and under conditions of calm would prove invaluable. The wooden ships today, as built on the Pacific coast, show good lasting qualities. A great many of them were built without being classed with any of the insurance societies, though they conformed with the practice on the Pacific coast. And there are a great many ships that have outlasted the term of years allowed by classification societies from 50 to 100 per cent. A wooden ship of moderate proportions that will last from fifteen to twenty-five years does not rank in my mind with bad investments.

The schooner of a million and a half feet capacity can be operated with from sixteen to eighteen men and can, on a voyage to New York through the canal, lay down lumber for about $6 a thousand feet.

A great many wild schemes are afloat in the matter of building vessels. Let me say that capital may be interested, but every man to his trade; the financier to his finance; the naval architect to his plans, and the builder to his building. A ship on paper, with a financier back of it, and a builder who can build quickly and well—there is the combination that will pick the chestnuts out of the fire.

It is evident that the greatest activity in building new ships is being displayed by the shippers. Some lumber people are still thinking of it and, not knowing very well what it is all about, are not disposed to do anything, or trust anyone till after the circus has gone. The shipper is aggressive and keen; he will carry anything and he has the key of the situation in his hand, and if we are to thank anybody for a revival of wooden shipbuilding, it is the shipping man who carries your lumber, your salmon and your wheat to market.

In conclusion, I would like to say a few things which concern our Seattle very vitally. The shipping bill has gone through; push it along; don't boost it. Build ships and when you have interests you can protect them. You can't protect theories. We have an opportunity now to get our merchant marine.

You must all remember that shipbuilding is not an ordinary venture, and now that there seems to be such a fortunate revival of the industry, there should be no hesitancy as to what shall be done, or how much, for, if for any reason your wooden shipbuilding should pass, and it will when steel prices become normal, for the reason that a steel ship for the same carrying capacity is both lighter and smaller, it is self-evident that they are more economical to operate. If, as I say, you develop a wooden shipbuilding industry, you will have at least the opportunity of changing to steel and thus be able to conserve your industry, which will be of the utmost value to the community and bring back to at least this part of the United States a love of the sea and seafaring, which seems to have all but died in the American bosom.

(From a speech by Martin C. Erisman, naval architect of Seattle, made before the Seattle Commercial Club June 9th.)

BREWERY'S BOOZE BOAT.

Stone's shop in Oakland has recently finished the freight and tow-boat Golden West, for the Golden West Brewing company. She is 50 feet long and 16 feet in the beam, and is powered with a 45 h. p. Union engine, which is expected to take her up against the Sacramento river current at a fair rate of speed. A trial trip down the Oakland estuary, attended by George White, president of the brewing company, and guests, and Lester Stone, was made April 13. The boat presents a rather unusual appearance, having a high bridge aft and no bulwarks. Two days after the trial trip she loaded her first cargo, 250 cases of beer for Sacramento river points, and started up stream in command of Earl Williams.

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NEW SOUTHERN CALIFORNIA SHIPYARD.

The James W. Evans Shipbuilding company has secured from the Salt Lake Railway company a plat of ground at Terminal, 500 feet wide by 600 feet in length, on which it is planned to build a modern plant for the building and repair of wooden shipping vessels of all kinds. Options have been obtained on adjoining ground so that ample room will be available if needed. The first contract secured by the new company has been the 65-foot tugboat of the General Petroleum company, which has one of the best loading stations on the Pacific coast at Point Fermin.

The Evans company's card solicits contracts for "anything in wood," and Mr. Evans has already shown marked ability in that sort of construction. The new yard is located at the foot of Mormon street, and the ferry system is said to be soon extended to that point.

C. D. Callahan, naval architect, is the designer of the first boat, and having designed and built some of the best pleasure boats in Southern California waters, he feels that his success with commercial craft will be equally great.

NEW POWER SCHOONER FOR SOUTH SEAS.

Atkins, Kroll & Co., San Francisco export and import brokers, have been taking figures for the construction of a large auxiliary schooner for trading in the South Seas, and the contract has been placed with Wm. S. Brusstar, jr., of Oakland. His bid was very much lower than that of any other shop. The schooner, it is said, will be almost an exact duplicate of the old island trader Hermes, built some years ago by Frank Stone, which is considered by the purchasers to be an ideal type for the work. The vessel will have a capacity of about 100 tons, and will have two masts, with an 80 h. p. Union engine as auxiliary. Her dimensions will be about 100 feet long by 24 feet beam, with 9 feet depth of hold. With a large hold and freight-handling facilities, crews' quarters, etc. forward, she will be fitted in yacht style aft, with a commodious cabin for several passengers, finely finished and furnished.

Official prices on fuel oil at the Panama canal were recently given as $1.40 per barrel at Balboa and $1.65 per barrel at Christobal.

MOTOR FISHING VESSEL GROWING POPULAR IN GREAT BRITAIN.

The motor fishing vessel seems to be coming into its own just now in Great Britain and it may be that the heavy demands thrown on steam rig building establishments is a result of the war may be responsible. With characteristic British cautiousness English fishermen have for years hesitated to going into motor vessels, but they are now seeming to be tackling the such with their usual national thoroughness.

Government fisheries boards have conducted hearings on the question of employing motor fishing vessels and have been instrumental in having the regulations so changed as to permit their use in districts where they were hitherto forbidden. Government funds have been used in some cases to equip fishing boats with motors and keep them under observation. Evidence thus secured shows that the earnings of vessels so fitted are considerably above the old style sail and steam powered vessels. Fishermen who testified on the subject stated in some cases that they would never ship again except on motor equipped vessels.

Among the marine motors now offered for sale in the British fishing ports are the Bolinders, Scandia, Tuxham, Gleniffer, Kelvin, Gardner, etc.

Scarcity of tonnage and the high freight rates have brought the old brig Harriet G. out of the bone yard and sent her to Valparaiso, Chile with approximately 300,000 feet of lumber at a rate of $30 a thousand feet. This old timer was built at Norfolk, Va., thirty years ago and has been lying idle around the Sound for nearly two years.

POWER SCHOONERS FOR MENHADEN FISHING.

The Gulf Fisheries company and allied interests, of Galveston, Texas, are starting a new menhaden fishing and fish scrap and oil industry, with a plant on St. Joseph's island, Port Arkansas, Texas. The fishing will be carried on by means of four large gasoline schooners, employing purse seines. The company expects to spend $40,000 in completing a reduction plant recently purchased in an unfinished condition from another company. The company already has four sailing vessels, which were built some time ago. They were constructed on Crowninshield designs, all alike, and are 100 feet long and 21 feet in beam. The power equipment is now being installed, and consists of 110-h. p. S. F. Standard marine engines, with a 5-h. p. Standard hoist for each boat.

DISTANCES BY THE CANAL AND BY THE STRAIT OF MAGELLAN.

The obstruction of the Panama Canal and the possibility that some of the ships using it may be diverted temporarily to longer routes has focussed attention on the matter of relative distances and time required.

For the United States coastwise trade the Canal route is from 7,663 to 8,940 miles shorter than the route through the Strait of Magellan, depending on the ports between which the voyages are made. From New York to San Francisco is 5,262 miles by the Canal, 13,135 by Magellan.

For a vessel at Balboa to go around to Colon, following the coast of South America, would mean a voyage of 10,500 nautical miles, or to go to New York, as directly as possible, a voyage of about 11,130 miles. For a ten-knot ship this would mean about forty-six days of travel, not including time for coaling. To go from Balboa to Liverpool by way of Magellan would mean a voyage of about 11,500 miles, of forty-eight days at sea for a ten-knot vessel.

AIR PROPELLED FREIGHTER FOR ALASKA

The growing popularity of the air propelled boats for shallow water work is shown by their ever increasing numbers. One day we hear of their being used as cannery tenders, the next day they are using them for mail boats in South America and now comes notice of a 38-foot by ten-foot scow equipped with an air propeller that is being used in the freight business on the Stikine river in Alaska.

The boat was built by Chas. Clark and Ed. Larsen near the Sanitary Cannery at Wrangel, Alaska. When running light it only draws three inches. The engine is a 60-h. p. high speed model and drives the scow around over the sand bars where the submerged propeller boats cannot go

Burmeister and Wain have under construction 44 large motorships having a total value of more than twenty-five million dollars.

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ORGANIZATION IN THE OIL ENGINE TRADE.

Co-ordinated organization, initiated and carried through by a representative and impartial committee or association, for the benefit of the entire industry, would have very satisfactory results, and should lift the hot-bulb oil-engine business to a high level.

It is easier to organize a comparatively new industry than an old one, and the manufacture of the hot-bulb oil engine, especially for marine work, should be organized on broad lines for the mutual benefit to be derived; each manufacturer should only make a few types and models, selecting, of course, the most suitable for his works and the ones that can be turned out most economically.

The demand for this type of engine has only been created during the last few years, but there has been, and always will be, a huge market for these engines, and makers can decide on their own size and power for the cylinders, i. e., the type, and make the models multiples of the types selected.

In actual practice it will be found quite unnecessary to make any sizes between 100 b. h. p., 150 b. h. p., and 200 b. h. p., and if makers will delete the intermediate sizes they will find that, by specializing on particular sizes and making them in large quantities, they will be able to sell, say, a 200 b. h. p. engine at as low a price as other makers who have many sizes can sell one of 175 b. h. p.

At first it will be said that purchasers insist on this or that power, and it is necessary to make a large variation, but if a maker attempts to satisfy every inquiry, he will always be making new patterns, whereas the wise manufacturer will steadily reduce the number of models and turn each type out in larger numbers, and this principle has proved very successful with motorcars. The very finest, and also the very cheapest, motorcars have only one or two types for the engine and chassis, and most makers of cars only cater for one particular market. There is no reason why it should not apply with equal success to hot-bulb engines, and makers would do well to copy this excellent example.

The reduction in the number of models, and the consequent saving in cost, is of paramount importance to builders who wish to obtain and hold a market. A glance at the industry will show some small manufacturer struggling to make engines really much larger than his machinery and plant is capable of, in an effort to compete with his bigger rivals, usually with disastrous results to himself and the trade. On the other hand, you will find firms with huge modern works and magnificent plant making 5 b. h. p. engines, so as not to allow the small competitors to take even the fragments. All this is wrong, with the exception of one or two firms, who have separate shops and management for the small-size as well as for the large-size engines.

The manufacturing side of this comparatively new industry should be properly organized—say, four classes for marine and four for land engines—one manufacturer turning out, say, a minimum of 100 engines of each type at one time, which would bring the cost down to a minimum. The fittings and parts, where similar, should be made to what might be termed the internal-combustion engine gauge, so as to make as many parts as possible interchangeable for different types of engines. At first manufacturers might think this would be against their interests, but on consideration the advantages to be gained would far outweigh all the disadvantages.

Reference has been made to the advantage and saving in spare parts, but there would also be the great advantage of builders being able to hold a stock of engines for immediate delivery, with from one-fifth to one-tenth the capital locked up on "stock account." Moreover, the cost of selling literature, catalogues, advertising, agency, traveling, preparation of installation plans, installing and running trials would all be reduced.

The possibilities of the hot-bulb oil-engine industry, if properly organized, are enormous: the price per brake-horse-power would be reduced to a minimum, and for engines of from 15 h. p. to 1000 h. p. they would not have a serious competitor for any form of marine work.

With the industry built up on the broad lines indicated, there is no reason why the present annual output of hot-bulb marine oil engines of 100,000 h. p. should not in a few years exceed 1,000,000 h. p. per annum.—Walter Pollock, M. I. N. A., in the Motor Ship and Motor Boat (London).

PREDICTS SUSTAINED RATES

That the high rates will keep up for a year after the war is the opinion of V. S. Hodges, manager of the lumber department of Hind, Rolph & Co., of San Francisco. Mr. Hodges calls attention to the fact that practically all ships are chartered for another year and some of them for a year and a half, and, that if the war should come to an abrupt end the increase in shipping would off set any number of vessels that might be liberated from government service. He believes the present rate may go still higher.

There was a time when nearly all of the sailing vessels on the Coast were owned by individual parties, but now 75 per cent of the Coast's lumber fleet is owned by eight firms. As lumber exporters Balfour, Guthrie & Co., the Port Blakeley Mill Co., and Comyn, Mackall & Co., have acquired large fleets since the beginning of last summer.

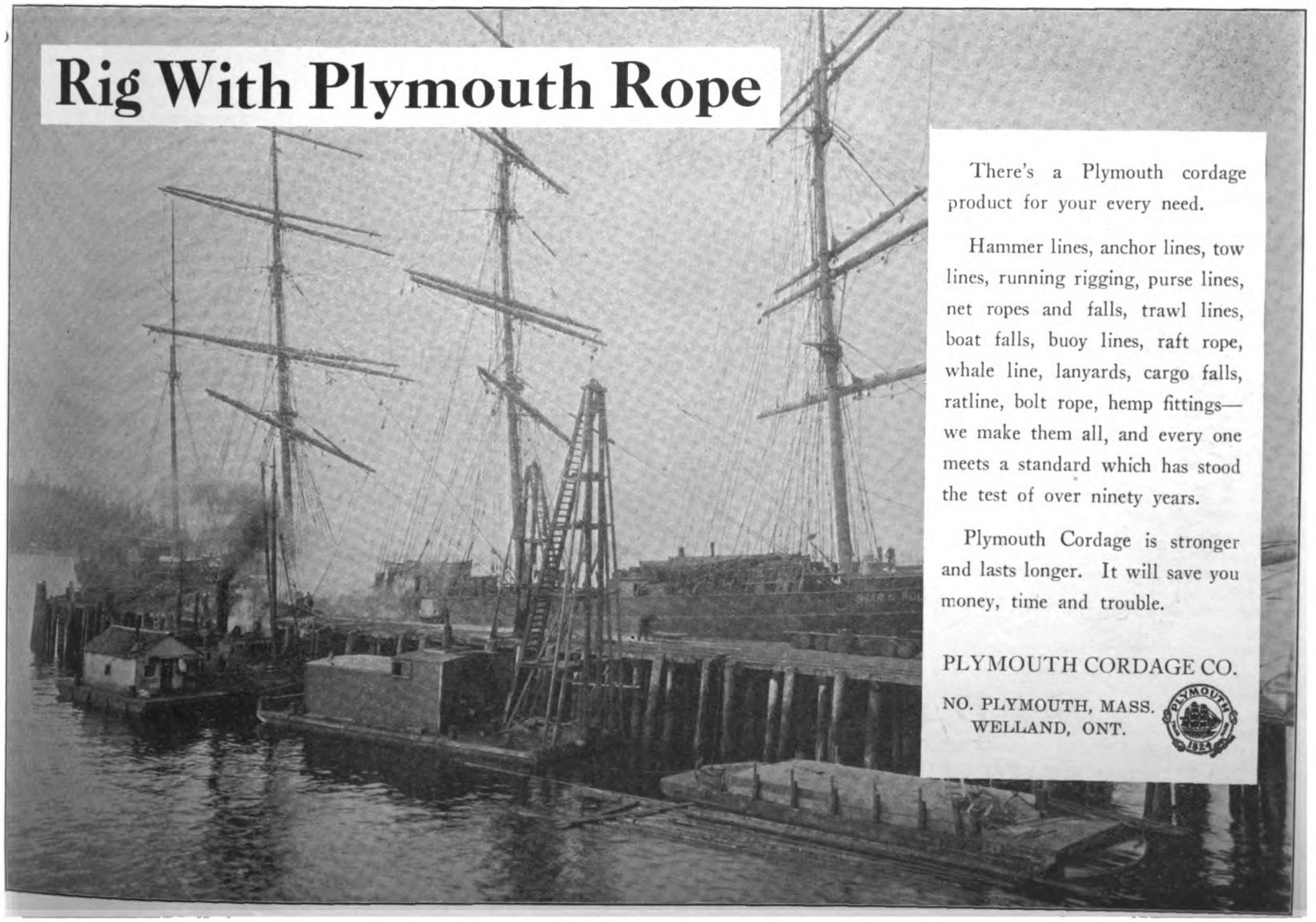
Only a few sailing vessels are now open to charter and if you want to make charters for 1918 you have to pay the prevailing rate.

The yards of John Wilson, boat and shipbuilders on the East Waterway in Seattle, are busy turning out a dredge for the Tacoma Dredging Co. to take the place of the one which was recently sunk. The new dredge will be 124 feet long by 38 feet beam and electrically equipped. The yard has contracted to have her ready in 43 days.

In a few days the new freighter for the H. B. Kennedy will be laid down in this same yard. This freighter is 80 feet long by 22 feet beam and will be powered with a 75-h. p. Fairbanks Morse heavy duty engine.

CORRECTION.

It was eroneously stated in the last issue of Motorship that the Union Gas Engine Co. had taken the Pacific Coast agency for the Skandia engine. The facts as correctly stated elsewhere in that issue are that the Union has taken the agency for the Craig Diesel engine. The Skandia engine is handled on the Pacific Coast by J. H. Hansen & Co. of San Francisco, whose Northwest representatives are Ross & Winter of Seattle.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NEW POWER TRAWLER FOR SAN FRANCISCO

The San Francisco-International Fish company's new boat, San Francisco-International No. 1, which has just been put in service, is the very latest word in power trawler construction in the San Francisco district, besides being the first vessel of the kind driven by gasoline power, all the older boats in this work having steam engines.

The new boat was built by M. Pasquinucci, of Sausalito. She is considerably smaller than the older steam trawlers, being only 55½ feet long over all, 14½ feet in the beam, and 6½ feet deep; but is decidedly staunch and seaworthy, the frames being of heavy bent oak, with ironbark keel, stem, gunwale and bumper strip. The planking is of 1¾ inch Oregon pine, both inside and outside, and a remarkable feature in a boat of this size is that the outside planking is all full-length, with no butts. She is a very pretty boat, as compared with the usual fishing craft of this district, having smart and graceful lines whose promise of speed is fully supported in action, as the boat, powered with an 80 h. p. Imperial engine, made a speed of 11 knots on her trial trip May 14.

In common with other boats of her type, a bulwark about 2 feet high surrounds the deck, and a forecastle forward is decked over even with the gunwale and surmounted with a small capstan driven from the propeller shaft. The forecastle is entered by a companionway and contains six bunks, besides which there are two bunks in the pilot house. The latter is just aft of the engine room, rising to a full standing height above the deck, and contains the engine controlling equipment so that the boat can easily be managed by one man. The engine is placed amidships and its housing is built up about three feet above the deck and covered with a very substantial skylight and ventilator.

A large hatchway opens into a hold aft, which is large enough, with the deck space, to carry a full catch of fish; the nets will be handled by a power winch of the usual trawler type placed in the rear of the pilot house, with a drum on either side driven from the main shaft. A short, heavy mast just aft of the pilot house supports a cargo boom, by means of which the nets will be hoisted aboard and put over the side, and a lighter mast has been stepped forward to carry the necessary night lights. The boat has a complete electric lighting system with a generator also operated from the main shaft.

Among other reasons for building the new boat is the recent stringent application of the government steam navigation rules to the old steam trawlers, requiring each to have a master, mate, engineer and assistant, and two firemen, together with the refusal of the masters and engineers to stay on watch after 5 p. m., which has of late made it necessary for the steam trawlers to tie up early in the evening whether they had made a catch or not, whereas they formerly would often stay out till late at night. Mr. Alioto, of the San Francisco-International Fish company, states that under present conditions the cost of operation of the new boat will be only about half that of the larger steamboats, while it will be possible to get just as much fish, as the old boats hardly ever get a full load and often bring in only a small fraction of their capacity. Moreover, the one-man control arrangement will make the company independent of engineers' restrictions, as with a boat of this size no licensed men are required and anybody who can handle a boat can take her out.

The company has applied for berth space for the new boat at Pier 21.

WOULD HAVE TO SHIP FROM AN AMERICAN PORT.

The following bill (H. R. 15839) has recently been introduced in the U. S. House of Representatives, and if passed by Congress will prevent the shipment of fresh or frozen halibut or salmon from the north Pacific ocean or its tributary waters into the United States through any foreign country except when the same shall be in bond from an American port:

"A BILL to regulate the importation into the United States of halibut or salmon taken in the north Pacific ocean or its tributary waters.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that from and after ninety days after the passage of this act no fresh or frozen halibut or salmon from the north Pacific ocean or its tributary waters shall be admitted into the United States through any foreign country except when the same shall be in bond from an American port."

The above bill has received the approval of the secretaries of commerce, state and treasury, and the U. S. commissioner of fisheries, and it is largely due to the efforts of H. C. Strong, of Ketchikan, Alaska, who has been in Washington working on this matter for some months, that matters have progressed so far with it.

Of its effect on the fishermen, Dr. Smith, U. S. commissioner of fisheries, in a report accompanying the bill, has the following in part to say:

"Its effect on the fishermen will simply be that the fish they now land at Canadian ports will be landed chiefly at Ketchikan, where they will have the ninety-mile trip to the Canadian port. It will necessitate the inauguration by the Grand Trunk Pacific railway of a ferry service suitable for the transportation of fish from Ketchikan, where the shipments would be accepted in bond for our eastern markets.

"The Grand Trunk Pacific railway will, if the measure here suggested is adopted, undoubtedly grant such facilities, as it needs the business of Southeast Alaska. Prince Rupert is bound to benefit by the shipment of halibut, even though originally landed at Ketchikan, but over and above this fact stands forth plainly that the Grand Trunk Pacific railway undoubtedly needs this business, as halibut is the road's most profitable factor in the eastbound freight.

"Under present regulations American fishing vessels are barred from discharging fish at Canadian ports for consumption in Canada, but Canadian vessels have the privilege of selling their catch in the United States in addition to selling in Canada. In other words, Canada discriminates against American vessels, but the United States does not place similar restrictions upon the sale of fish caught by Canadian vessels.

"This means that Americans are forced to add vessels of Canadian registry to their fleets if they want to participate in the Canadian trade, and without effective legislation the tendency will be to increase the Canadian fleet at American ports."

HALIBUT ORDER IN COUNCIL AMENDED.

The Dominion order in council, under which American halibut fishing vessels were given certain special rights in the Dominion ports on the Pacific coast, has recently been amended so as to permit American vessels to purchase bait when first starting out, provided they will agree to land their catch at a Canadian port for transshipment in bond to the United States. The amended order follows:

During the present calendar year (1916), foreigners or foreign corporations bringing fresh fish in vessels registered in the United States to any port in British Columbia shall be permitted to land such fresh fish at such port without payment of duties, and transship the same in bond to any port in the United States, or to sell such fish in bond to such local dealer or dealers as may be properly and duly licensed therefor under the regulations and conditions hereinafter mentioned, which dealer or dealers shall export the same in compliance with the bonding requirements, but without the right, however, in either instance, to sell in Canada for consumption therein or otherwise, except in bond, any of such fresh fish so landed; and such foreigners and foreign corporations bringing fresh fish in vessels registered in the United States of America to any port in the said Province of British Columbia, shall be permitted to purchase bait and supplies, and ship crews for such vessels at any port in the said Province of British Columbia: Provided, also, that such foreigners and foreign corporations before bringing fresh fish to a port in British Columbia may be permitted to purchase bait at any port in said Province of British Columbia upon an undertaking to the satisfaction of the minister of customs that catches of fish made with any baiting so supplied shall be landed at any port on the mainland of British Columbia, and be thence forwarded in bond to a port in the United States —the whole under such regulations and conditions as the minister of customs may determine.

HALIBUT STRIKE STILL ON.

The halibut strike is still dragging along with very few features of interest in connection with it. The vessel owners are operating several vessels with crews composed mainly of captains of vessels laid up, and these vessels are making excellent trips at the present high prices. Several reports of violence offered to members of the crews of these vessels have been reported. One of the crew of the Republic was severely beaten on the wharf at Blaine, when the vessel visited there recently, by men said to have come to that place from Seattle. It is also reported that a launch loaded with strikers followed the schooner Liberty down the sound as she was heading for the banks, but it was turned back by the coast guard cutter. B. Hegge, master of the Republic, was beaten with a mallet held in the hands of a man said to be a striker, on May 19, when he was unloading a cargo of fish in Vancouver, B. C. Take it all in all, however, there has been less violence in this strike than in any other which has occurred in connection with the industry for some years past.

The strike has been a God-send to the purse seiners of Puget sound, a large fleet of whom have been engaged in fishing for halibut during the last two months. They have fished mostly on Flattery bank.

Most of the fishing in May was carried on either on Flattery or in the North, fish being scarce on the Washington and Oregon coasts.

BRISTOL BAY CLEAR OF ICE.

In view of the various detailed reports received during the winter and early spring of an exceptionally severe winter and heavy ice all over Western Alaska, some surprise was occasioned by the receipt in San Francisco of a brief dispatch from the steamer Lehua, of the Naknek Packing company, dated May 14, and reporting no ice there. No details were given, and it is uncertain whether the statement applied to the Bristol bay district generally or merely to the Naknek river. Pending the receipt of more detailed accounts of conditions, the packers do not regard this report as giving complete assurance, as the conditions reported, if general, would be extraordinary so early in the season even in a normal year. Further advices are accordingly awaited with no little interest, and this first report, if confirmed, will be most encouraging to packers, who are especially anxious this year to get as much salmon in the Bristol bay district as possible.

The Lehua took up a large generator, which will be installed at the company's wireless plant, giving it a much wider range of communication than it has had in the past.

The Northwestern Fisheries company has received advices at headquarters in Seattle that their steamer Shelikoff had arrived at Nushagak about the middle of May, and the master did not report conditions as being other than normal. Since that time the wireless has not been working good and it has been impossible to receive or send messages to Bristol bay.

The Alaska-Portland Packers' association received wireless some time ago to the effect that their ships Levi G. Burgess and Berlin had arrived off Nushagak bay on May 10. No ice was found in Bristol bay, but the Nushagak was still full of ice. The S. S. Dora reached Nushagak village, near the head of the bay, on June 3, showing that the bay was open then.

GLORY OF THE SEAS AT SCOW BAY.

The floating fish freezing ship Glory of the Seas, owned by the Glacier Fisheries company, of Tacoma, Wash., has been towed to Scow bay, in Wrangell Narrows, and arrived there May 21. The vessel will be stationed here during the fishing season, and will handle halibut, salmon and trout.

This vessel was formerly a sailing ship. In 1911 and 1912 she was operated as a floating cannery. In 1913 she was purchased by the Glacier Fish company and turned into a floating freezing plant and stationed at Idaho Inlet, in Southeast Alaska. The vessel was tied up in 1914, but was operated at Idaho Inlet again in 1915.

STEAMER TURNED INTO SAILING VESSEL.

The old Pacific Mail steamer City of Sydney, bought by the Bristol Bay Packing company, of San Francisco, has had her new masts stepped, and will be tried out as a sailing vessel for the first time about June 1, sailing soon after in the off-shore lumber trade.

FISCHER IN EAST.

O. H. Fischer, manager of the Union Gas Engine company, made a trip East during the early part of June, where he conducted negotiations with James Craig of Jersey City for the manufacture of the Craig Deisel engines at the Union plant, Oakland, Cal. Mr. Fischer was accompanied by his family. After spending some days in New York and vicinity they proceeded to Chicago, where Mr. Fischer attended a meeting of the National Association of Gas Engine Manufacturers, and made the return trip via Montana, where they enjoyed a two weeks' vacation.

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